

TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 95OPAD072

Metro Wastewater Reclamation District
Adams County
Source ID 0010097

Prepared by Jacqueline Joyce
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Revised February and May 2003

I. Purpose:

This document establishes the decisions made regarding the requested modifications to the Operating Permit for Metro Wastewater Reclamation District. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the original request for modification submitted to the Division on January 24, 2003, a meeting with the source on April 24, 2003, and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

Metro Wastewater Reclamation District (MWRD) has requested a modification to their Title V operating permit to include the applicable requirements in a construction permit issued for an emergency generator on September 20, 2001. In addition, MWRD wishes to address various issues that they have identified since the permit was originally issued or that the Division identified during inspections. These other issues are as follows:

- Include H₂S emissions generated during anaerobic digester maintenance in the insignificant activity list in Appendix A.
- Address particulate matter emissions from composting in the operating permit.
- Include storage tanks that are subject to the provisions in 40 CFR Part 60 Subpart Kb in Section II of the operating permit.

The source indicated in their modification that they believe the requested modifications qualify as minor modifications and requested that the modifications be processed using the minor permit modification procedures in Colorado Regulation No. 3, Part C, Section X.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications “are not otherwise required by the Division to be processed as a significant modification” (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that “any change that causes a significant increase in emissions” be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). According to Appendix D of Regulation No. 3 (Section I.F, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a significant increase in emissions is the potential to emit above the PSD significance levels. The construction permit for the emergency generator limits NO_x emissions to 19.27 tons/yr, therefore the potential to emit for the emergency generator is below the PSD significance level. In addition, the APENS and/or emission estimates for the storage tanks, the composting and the digester maintenance activities indicated that emissions from these sources/activities are well below the PSD significance levels. Therefore, the Division considers that these modifications would not cause a significant increase in emissions and can be processed as a minor modification.

In addition, the Division requires that “any change that is considered a modification under Title I of the Federal Act” be processed as a significant permit modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(ii)). Part D of Regulation 3 describes more specifically what constitutes a modification under Title I of the Federal Act and Part D (Section I.F, revisions adopted July 15, 1993, Subsection I.G for modifications) indicates that a modification which triggers NSPS is considered a Title I modification. As previously indicated, MWRD has indicated that the facility has tanks that are subject to the provisions in 40 CFR Part 60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction or Modification Commenced after July 23, 1984). However, since the liquids stored in these tank have a maximum true vapor pressure less than 3.5 kPa, the tanks are exempt from the NSPS general provisions (40 CFR Part 60 Subpart A) and the provisions of 40 CFR Part 60 Subpart Kb, **except that** the provisions of 40 CFR Part 60 Subpart Kb §§ 60.116b(a) and (b) apply. 40 CFR Part 60 Subpart Kb §§ 60.116b(a) and (b)

require that the source keep readily accessible records showing the dimensions of the vessel and an analysis showing the capacity of the storage vessel for the life of the tank. Under the construction permit procedures in Colorado Regulation No. 3, Part B, no public comment period would be required to permit these tanks. Therefore, since public comment would not be required if these tanks were processed as a construction permit and because the NSPS requirements are not substantive (i.e. not an emission limitation, control requirement or design restriction), the Division considers that this modification can be processed as a minor modification.

III. Modeling

A construction permit was issued for the emergency generators, with permitted emissions of 19.27 tons/yr of NO_x and 3.67 tons/yr of CO. No modeling was conducted during construction permit processing since requested emissions were below the modeling threshold (20 tons/yr of NO_x at the time of permit issuance) in the Division's Modeling Guidance.

Although composting emissions are above APEN de minimis levels, composting is exempt from construction permit requirements. The APEN submitted by MWRD on November 4, 2002, indicated that with controls, PM₁₀ emissions were less than 2 tons/yr and therefore, the level of PM₁₀ emissions are well below the modeling threshold (15 tons/yr) in the Division's Modeling Guidance.

Finally, the VOC emissions from the storage tanks and H₂S emissions from digester maintenance are well below APEN de minimis levels.

Therefore, no modeling analysis was conducted for this minor modification.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

Emergency Generator

MWRD purchased an emergency generator in 1999 and if the unit were operated less than 100 hrs/yr it would be exempt from APEN reporting and construction permit requirements. However, MWRD anticipated that use of the emergency generator in the future due to planned maintenance would require use of the generator for more than 100 hrs/yr and therefore requested that the Division issue a construction permit. Colorado Construction permit 01AD0285 was issued for this unit on September 20, 2001 (initial approval). The unit commenced operation on February 15, 2002.

The source has demonstrated compliance under the provisions of Regulation No. 3, Part B, Section IV.H for initial approval construction permit 01AD0285 but not yet received a final approval construction permit. Under the provisions of Regulation No. 3, Part C, Section V.A.3., the Division will not issue a final approval construction permit and is allowing the initial approval construction permit to continue in full force and effect. The appropriate provisions of the initial approval construction permit have been directly incorporated into this operating permit.

Applicable Requirements

The emergency generator is subject to the following applicable requirements as identified in permit 01AD0285:

- Visible emissions shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. Opacity shall be measured by EPA Method 9 (condition 1, Reg 1, section II.A.1 and 4)

Note that Colorado Regulation No. 1 does not identify the 20% opacity requirement as a condition that only applies during normal operation and EPA has objected, in comments on another operating permit, to the term “normal operations” applied to the 20% opacity standard. The specific operational activities subject to the 30% opacity requirement are also conditions that can be considered “normal operation”. Therefore, the language in the permit will not specify “normal operation”.

Note that the 30% opacity requirement applies under other specific operational activities rather than just startup, process modification and adjustment of control equipment. The Division considers that these other activities such as fire building, cleaning of fire boxes and soot blowing are not applicable to the diesel engine. In addition, this engine does not have a control device. Also, based on engineering judgment, it is not expected that process modifications would occur during operation of this unit or that such modifications would not last longer than 6 minutes. Therefore, the 30% opacity requirement will only be included for startup.

- Construction of this source must commence within 18 months of initial approval permit issuance date or within 18 months of date on which such construction or activity was scheduled to commence as stated in the application. If commencement does not occur within the stated time the permit will expire on March 20, 2003 (condition 4).

Since this unit has commenced construction and operation, this requirement will not be included in the operating permit.

- Emissions of air pollutants shall not exceed the following limitations (condition 5):

○ PM	0.11 tons per quarter	and	0.43 tons per year
○ PM ₁₀	0.06 tons per quarter	and	0.25 tons per year
○ SO ₂	0.22 tons per quarter	and	0.87 tons per year
○ NO _x	4.82 tons per quarter	and	19.27 tons per year
○ VOC	0.09 tons per quarter	and	0.35 tons per year
○ CO	0.92 tons per quarter	and	3.67 tons per year

During the first twelve (12) months of operation, compliance with both the quarterly and yearly emission limitations shall be required. After the first twelve (12) months of operation, compliance with only the yearly limitation shall be required. Compliance with the yearly emission limits shall be determined on a rolling twelve (12) month total.

By the time this revised permit is issued, the generator will have been in operation for more than one year, so the quarterly emission limits will not be included in the operating permit.

In addition, since PM, PM₁₀, SO₂ and VOC emissions are below APEN de minimis levels they will not be included in the operating permit. Note however, that PM, PM₁₀, SO₂ and VOC emissions shall still be reported on any APENs submitted and are still subject to annual fees.

- This source shall be limited to a maximum consumption rate as listed below and all other activities, operation rates and numbers of equipment as stated in the application. Monthly records of the actual throughput shall be maintained by the permittee and made available to the Division for inspection upon request (condition 6).
 - Hours of operation shall not exceed 187.5 hours per quarter and 750 hours per year

During the first twelve (12) months of operation, compliance with both the quarterly and yearly limitations shall be required. After the first twelve (12) months of operation, compliance with only the yearly limitation shall be required. Compliance with the yearly limits shall be determined on a rolling twelve (12) month total.

By the time this revised permit is issued, the generator will have been in operation for more than one year, so the quarterly operating limits will not be included in the operating permit.

- APEN reporting requirements (condition 7)

The APEN reporting requirements will not be identified in the permit as a specific condition but are included in Section IV (General Conditions) of the permit, condition 22.e.

- Major stationary source requirements shall apply at such time that this source becomes major solely by virtue of a relaxation of any permit condition. Any relaxation that increases the potential to emit above the applicable major stationary source threshold will result in this source being subject to Major Stationary Source requirements of Regulation 3, Part B (condition 8)

At this time the construction permit was issued for the emergency generator, the Denver metro area was non-attainment for PM₁₀ and therefore the major stationary source threshold level was 100 tons/yr. In the Denver metro area, NO_x is considered a precursor for PM₁₀ and therefore the major stationary source level for NO_x was also 100 tons/yr. In the Division's preliminary analysis for the emergency generator, the potential to emit of NO_x was estimated at 225 tons/yr and as a result the generator was considered a synthetic minor source and the above language was included in the construction permit. However, as of October 16, 2002, the Denver metro area was classified as attainment/maintenance for PM₁₀. With the re-designation, the major stationary source threshold level is 250 tons/yr and the emergency generator is no longer considered a synthetic minor source. Therefore, the language above will not be included in the operating permit.

- Prior to final approval being issued, the applicant shall submit to the Division for approval an operating and maintenance plan for all control equipment and control practices and a proposed recordkeeping format that will outline how the applicant will maintain compliance on an ongoing basis with the requirement of condition No. 5 (emission limits) listed above (condition 9)

The source submitted an operating plan and proposed recordkeeping plan on July 30, 2002 with their self-certification. Therefore, this requirement will not be included in the operating permit. It should be noted that the operating permit defines the periodic monitoring required to monitor compliance with the permit conditions.

- Within one hundred and eighty days (180) after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division. It is the permittee's responsibility to self certify compliance with the conditions. Failure to demonstrate compliance within 180 days may result in revocation of the permit (condition 10).

The source submitted their self-certification on July 30, 2002. Therefore this requirement will not be included in the operating permit.

Although not specifically identified in the construction permit, the emergency generator is subject to the following applicable requirements:

- Sulfur dioxide emissions shall not exceed 0.8 lbs/mmBtu (Reg 1, Section IV.B.4.b.(i))

Emission Factors

Approval of emission factors is necessary to monitor compliance with the emission limitations. The following emission factors are approved for use to monitor compliance with the emission limitations:

Pollutant	Emission Factor	Source
NO _x	12.6 g/hp-hr	Manufacturer's Emission Factors
CO	0.85 lbs/mmBtu	AP-42, Section 3.4, Table 3.4-1, dated October 1996

The Division believes it is appropriate to convert the emission factors into consistent units. Since the permit did not include a fuel consumption limit on the generator the Division will convert the CO emission factor into units of g/hp-hr. The CO emission factor was converted using the following equation:

$$EF \text{ (g/hp-hr)} = \frac{EF \text{ (lbs/mmBtu)} \times 453.6 \text{ g/lb} \times \text{hrly fuel rate (gal/hr)} \times \text{heat value fuel (mmBtu/gal)}}{\text{Max HP}}$$

An emission factor of 2.4 g/hp-hr will be included in the permit for CO. This emission factor is based on an hourly fuel consumption rate of 84 gal/hr and a maximum hp of 1850 hp, as indicated in the manufacturer's data sheet submitted with the construction permit application and a diesel fuel heat value of 137,000 Btu/gal from AP-42, Appendix A.

Monitoring Plan

The source will be required to record hours of operation and calculate emissions monthly. Emission calculations will be based on maximum horsepower. EPA Reference Method 9 observations shall be required to monitor compliance with the opacity requirements. In the absence of credible evidence to the contrary, compliance with the sulfur dioxide requirement is presumed provided the sulfur content of the diesel fuel does not exceed 0.5% by weight.

H₂S Emissions During Digester Maintenance

The source submitted emission calculations showing that H₂S emissions are below APEN de minimis levels (50 lbs/yr). Therefore, the Division has included

H₂S emissions from digester maintenance in the insignificant activity list in Appendix A of the permit.

Composting Operations

During a regular inspection in 2002, the Division noticed that there were significant particulate emissions being generated from turning the composting piles. As a result, the inspector requested that MWRD estimate particulate matter emissions from composting to confirm that actual uncontrolled emissions were below APEN reporting levels (2 tons/yr). Prior to this, the Division considered that PM and PM₁₀ emissions from composting would be minimal, although no calculations to estimate emissions had ever been performed by either the Division or MWRD. Composting operations at MWRD were permitted at one time, but the permit was rescinded when revisions to Regulation No. 3 in 1993 provided an exemption from construction permits for composting piles (Reg 3, Part B, Section III.D.1.h). Since the Division previously treated the composting operations only as a source of odorous emissions and not of criteria pollutant emissions, it was determined that the composting pile was exempt from APEN reporting requirements since no emission control equipment was used to control odorous emissions (Reg 3, Part A, Section II.D.1.rr). However, the exemption in Reg 3, Part A, Section II.D.1.rr applies only to odorous emissions and since MWRD has now estimated actual uncontrolled emissions of PM and PM₁₀ to be above APEN de minimis levels, an APEN is still required for composting operations. MWRD submitted an APEN on November 4, 2002 for the composting operations.

The current operating permit includes emission factors for composting operations under the wastewater treatment operations portion (Section II.1) of the permit. A construction permit was issued for wastewater treatment operations and the wastewater treatment operations are subject to a VOC emission limit and a wastewater processing limit. Since composting operations are specifically exempt from construction permit requirements it is not appropriate to include the composting operation under the permitted wastewater treatment operations. Therefore, the requirement to calculate VOC emissions from composting operations has been removed.

Originally, the Division considered that although the composting operations are specifically identified as an insignificant activity in Reg 3, Part C, Section II.E.3.rrr, the insignificant activity exemption could not be taken since they are subject to APEN reporting requirements. That decision was based on the "catch-all" provisions in Reg 3, Part C, Section II.E, which state that a source cannot take the insignificant activity exemption, if in doing, so any specific federal or state applicable requirement would be avoided. The Division considers that APEN reporting is a specific applicable requirement. However, at the request of the source in a meeting on April 24, 2003, the Division agreed to review the situation further.

All of the activities specifically listed in the APEN exemption section are also listed in the insignificant activity exemption section. There are, however, four activities listed in the insignificant activities section that are construction permit-exempt but not APEN-exempt. Note that not all of the activities that are listed as construction permit exemptions in Reg 3, Part B, Section III.D.1 are included in the list of insignificant activities. Since the insignificant activity list specifically includes both APEN-exempt and APEN-required activities, the Division considers that the Commission did not intend that the APEN-required activities be subject to the Part C catchall requirements, specifically due to APEN reporting requirements. Therefore, the composting operations are included in the insignificant activity list in Appendix A of the permit.

Tanks Subject to NSPS Kb

During the processing of the Title V operating permit for the Trigen Cogeneration Facility at the Metro Wastewater Facility, MWRD and the Division became aware that there were some storage tanks at the facility that were subject to the requirements in 40 CFR Part 60 Subpart Kb. The January 24, 2003 modification request identifies a waste oil tank (nominally 10,000 gal, design capacity) and a diesel tank (nominally 15,000 gal, design capacity) as being subject to the requirements of 40 CFR Part 60 Subpart Kb. Although the tanks have emissions below APEN de minimis levels, an APEN still needs to be filed under the “catch-all” provisions, since the tanks are subject to federal NSPS requirements. In addition, a construction permit is also required for these tanks. MWRD submitted APENS for the tanks with their request to revise the operating permit and requested emissions for both tanks that were well below APEN de minimis levels. Since requested emissions for each tank is below APEN de minimis levels no VOC emission limits will be included in the permit.

No construction permit will be issued for these tanks. However, the appropriate applicable requirements will be included in the operating permit. The tanks are subject to the following applicable requirements:

- APEN reporting (Reg 3, Part A, Section II)
- 40 CFR Part 60 Subpart Kb, as adopted by reference in Colorado Regulation No. 6, Part A, specifically these units are subject to the following:
 - Maintain records (per § 116b(b)) for the lifetime of the source (40 CFR Part 60 Subpart Kb § 116b(a))
 - Keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the vessel (40 CFR Part 60 Subpart Kb § 116b(b)).
 - Since these tanks store liquids with a maximum true vapor pressure

less than 3.5 kPa, **these vessels are exempt** from the requirements of 40 CFR Part 60 Subparts A and Kb, except for §§ 60.116b9a) & (b) (40 CFR Part 60 Subpart Kb § 110b(c)).

As discussed above, no VOC emission limits will be included in the operating permit since requested emissions are below APEN de minimis levels. However, the tanks are still subject to APEN reporting requirements because of the “catch-all” language. Approval of emission factors is necessary to determine annual emissions for the purposes of APEN reporting and payment of fees. For this modification request, the source used AP-42 emission factors. The permit will require that VOC emissions from the tanks shall be determined annually using AP-42 emission factors.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Metro Wastewater Operating Permit with the source’s requested modifications. These changes are as follows:

Page following Cover Page

The citation (above “issued to” and “plant site location”) on the page following the cover page provides the incorrect title for the state act. The title will be changed from “Colorado Air Quality Control Act” to “Colorado Air Pollution Prevention and Control Act”. In addition, the dates were removed from the citation.

Added language specifying that the semi-annual reports and compliance certifications are due in the Division’s office and that postmarks cannot be used for purposes of determining the timely receipt of such reports/certifications.

Section I - General Activities and Summary

Revised the language in Condition 1.1 regarding the attainment status of the Denver metro area.

Conditions 13 and 17 in Condition 1.4 were renumbered to 14 and 18 and Condition 21 in Condition 1.5 was renumbered to 22. The renumbering changes were necessary due to the addition of the Common Provisions requirements in the General Conditions of the permit.

Removed the language in Condition 1.6 addressing Non-Attainment Area Major New Source Review (NSR). Since the Denver metro area is no longer a non-attainment area, these provisions do not apply. In addition, this condition was moved to the “new” section 3 for PSD (see below).

Based on comments made by EPA on another operating permit, the phrase “Based on the information provided by the applicant” was added to the beginning of Condition 3.1 (112(r)).

Removed Condition 3.2 (112(r) certification of risk management plans), since this is included in the annual compliance certification in Appendix C.

Added a “new” Section 3 for PSD review requirements. This section had not previously been included since both PSD and major non-attainment area new source review were applicable and addressing both provisions was very complicated.

Added the emergency generator, storage tanks and composting operations to the table in Condition 4.1.

Added a “new” Section 5 for compliance assurance monitoring (CAM), note that no emission units are subject to CAM.

Section II.1 – Wastewater Treatment Operations

Removed the composting emission factor from the table under Condition 1.1 and composting from the equations in the text of Condition 1.1. Composting operations are now included in Appendix A as an insignificant activity.

Removed the requirement to record the quantity of compost processed (Condition 1.3.).

Minor language changes were made to Condition 1.5 (odor)

Section II.2 – Gasoline Storage Tank

The original Title V operating permit that was issued for the facility did not include the gasoline storage tank. Upon discovery of the tank, MWRD submitted a modification request to include the gasoline storage tank in their operating permit. A revised operating permit was issued on May 14, 2001 that included the gasoline storage tank. Under the “catch-all” provisions in Regulation No. 3, at the time the operating permit was revised, the tank could not take the APEN, construction permit or insignificant activity exemptions because it was subject to specific requirements in Regulation No. 7. Revisions were made to the “catch-all” provisions in Regulation No. 3 and those revisions became effective on December 30, 2002. With these revisions, an emission unit that is subject to

specific Regulation No. 7 requirements can take the APEN and construction permit exemptions. However, an emission unit that is subject to specific Regulation No. 7 requirements cannot be considered an insignificant activity. Therefore, the Division removed the VOC emission limit (Condition 2.1) and the gasoline processing limit (Condition 2.2) from the permit since the tank can take the APEN and construction permit exemptions.

In addition, removed the phrases in Conditions 2.4, 2.5 and 2.6 that stated that the source “will certify annually” that certain requirements are met. This statement implies that a separate certification statement is required for these specific conditions and requiring a separate certification was not the Division’s intent. The annual certification (Appendix C) required by the operating permit will serve as the compliance indicator that this tank is only filled by a certified tanker truck and that the remaining Regulation No. 7 requirements are being met (i.e. VOC disposal, submerged pipe specifications, etc.).

Section III – Permit Shield

Based on comments made by EPA on another permit, the following statements were added after the introductory sentence in Section 1 “In addition, this shield does not protect the source from any violations that occur as a result of any modification or reconstruction on which construction commenced prior to permit issuance”.

Section IV – General Conditions

Added an “and” between the Reg 3 and C.R.S. citations in General Condition 3 (compliance requirements).

Added language from the Common Provisions (new condition 3). With this change the reference to “21.d” in Condition 20 (prompt deviation reporting) will be changed to “22.d”, since the general conditions are renumbered with the addition of the Common Provisions.

Removed the upset and breakdown provisions from Condition 4 (emergency provisions) since they are included in the Common Provisions. Removed the upset and breakdown provisions from Condition 4 (emergency provisions) since they are included in the Common Provisions.

Effective July 1, 2001, the Division’s permit processing, emission and APEN fees were increased. Therefore, the language in Condition 7 (fees) was changed to remove the specified fee and cite the state statute for the appropriate fee. In addition, the state statute will be cited rather than Reg 3.

The phrase “Part A” was added to the citation for Condition 13 (odor). Colorado Regulation No. 2 was revised and a Part B was added to address swine

operations. Colorado Regulation No. 2, Part B should not be included as a general condition in the operating permit.

The citation in General Condition 16 (open burning) was revised. The open burning requirements are no longer in Reg 1 but are in new Reg 9. In addition, changed the reference in the text from “Reg 1” to “Reg 9”.

Added the requirements in Colorado Regulation No. 7, Section V.B (disposal of volatile organic compounds) to General Condition 28.

Appendices

Corrected Table in Appendix B, Part I (changed “IN” and “OUT” under “deviations noted” to “YES” and “NO”)